

WHAT IS CLAIMED IS:

1. A reproducing apparatus comprising:

a reproducing unit that reproduces a plurality of information data, and management information, which  
5 contains duration information indicating reproduction durations of the information data, from a recording medium; and

a control unit that controls a reproduction operation of the information data by said reproducing  
10 unit on the basis of the duration information reproduced by the reproducing unit, and reproduction control information indicating a reproduction sequence of the plurality of information data.

2. The apparatus according to claim 1, wherein when  
15 information data designated by the reproduction control information has been deleted from the recording medium, said control unit changes the reproduction sequence designated by the reproduction control information on the basis of the duration information of the deleted  
20 information data.

3. The apparatus according to claim 2, wherein said control unit controls said reproducing unit to output predetermined information in place of the deleted information data during a period corresponding to the  
25 reproduction duration of the deleted information data.

4. The apparatus according to claim 2, wherein said control unit controls said reproducing unit to output

predetermined alarm information during a period corresponding to the reproduction duration of the deleted information data.

5. The apparatus according to claim 2, wherein said  
5 control unit controls said reproducing unit to stop output of the information data during a period corresponding to the reproduction duration of the deleted information data.

6. The apparatus according to claim 2, wherein the  
10 management information further contains deletion information indicating that information data designated by the reproduction control information has been deleted from the recording medium, and said control unit determines based on the deletion information  
15 whether or not information data designated by the reproduction control information has been deleted from the recording medium.

7. The apparatus according to claim 6, further comprising:

20 an instruction unit that instructs to delete arbitrary information data of the plurality of information data recorded on the recording medium;  
a management information processing unit that appends, when the information data corresponding to the  
25 deletion instruction of said instruction unit is designated by the reproduction control information, the

deletion information to the management information of the deleted information data.

8. The apparatus according to claim 2, wherein the information data include moving image data, audio data, and still image data, and said control unit controls said reproducing unit to stop reproduction of the information data during a period corresponding to the reproduction duration designated by the duration information when the deleted information data is moving image data or audio data, and to stop reproduction of the information data during a period designated by the reproduction control information when the deleted information data is the still image data.

9. An apparatus for recording a plurality of information files each containing information data on a recording medium, comprising:

a management file processing unit that generates a management file associated with the information files for each directory on the recording medium, where the information files are stored; and

a recording unit that records the information files and the management file associated with the information files, which are stored in a single directory, on the recording medium.

10. The apparatus according to claim 9, wherein the management file comprises entries corresponding to the

information files in the directory, and each entry has a plurality of types of attribute information.

11. The apparatus according to claim 10, wherein the attribute information includes identification  
5 information used to identify the information file.

12. The apparatus according to claim 11, further comprising a control information processing unit that generates reproduction control information indicating a reproduction sequence of the plurality of information  
10 data recorded on the recording medium by designating the information data recorded on the recording medium using the identification information.

13. The apparatus according to claim 10, further comprising:

15 a control information processing unit that generates reproduction control information indicating a reproduction sequence of the plurality of information data,

wherein the attribute information includes link  
20 count information indicating the number of pieces of reproduction control information, which designate the information data corresponding to that entry.

14. The apparatus according to claim 13, wherein said management file processing unit changes a value of the  
25 link count information in the entry in correspondence with a change in reproduction sequence of the reproduction control information.

15. The apparatus according to claim 13, wherein the attribute information includes deletion information indicating that the information data has been deleted from the recording medium, and

5        said management file processing unit determines based on a value of the link count information in an entry of the information data corresponding to the deletion instruction, whether or not the deletion information is to be appended.

10 16. The apparatus according to claim 15, wherein said management file processing unit appends the deletion information when a value of the link count information in an entry of information data corresponding to the deletion instruction is not less than 1, and deletes  
15 the entry of the information data corresponding to the deletion instruction from the management file when the value of the link count information in the entry is zero.

17. The apparatus according to claim 13, wherein when  
20 said control information processing unit generates new reproduction control information, said management file processing unit increments a value of the link count information in an entry of each information data designated by the new reproduction control information.

25 18. The apparatus according to claim 13, wherein when the reproduction control information is deleted, said management file processing unit decrements a value of

the link count information in an entry of each information data designated by the deleted reproduction control information.

19. The apparatus according to claim 10, wherein the  
5 attribute information includes type information indicating a type of information data.

20. The apparatus according to claim 10, wherein the  
attribute information includes duration information  
10 indicating a reproduction duration of the information data.

21. The apparatus according to claim 10, wherein when  
said recording unit stores and records a new  
information file in one directory, said management file  
processing unit adds a new entry to the management file  
15 in the one directory.

22. The apparatus according to claim 9, wherein said  
recording unit determines a directory used to store a  
new information file to be recorded in accordance with  
a predetermined condition.

20 23. The apparatus according to claim 22, wherein when  
the new information file is to be recorded within a  
predetermined period of time after the information file  
recorded immediately before the new information file  
was recorded, said recording unit records the new  
25 information file in the same directory as the  
information file recorded immediately before the new  
information file.

24. The apparatus according to claim 22, wherein when the new information file is to be recorded after a predetermined period of time or more has elapsed since the information file recorded immediately before the new information file was recorded, said recording unit records the new information file in a new directory different from the information file recorded immediately before the new information file.

25. The apparatus according to claim 9, further comprising:

a control information processing unit that generates reproduction control information indicating a reproduction sequence of the plurality of information data, and

wherein said management file processing unit changes contents of the management file in accordance with new reproduction control information generated by said control information processing unit.

26. The apparatus according to claim 25, wherein the management file is described in a data description language, and the reproduction control information designates the information file in an Xpath/XPointer format.

27. The apparatus according to claim 9, wherein the management file has a predetermined extension.

28. An apparatus for recording information data on a recording medium, comprising:

a management information processing unit that generates management information which contains identification information used to identify the information data recorded on the recording medium;

5        a recording unit that records the management information generated by said management information processing unit on the recording medium; and

         a control information processing unit that generates reproduction control information indicating a  
10 reproduction sequence of a plurality of information data recorded on the recording medium by designating the information data recorded on the recording medium using the identification information.

29.    The apparatus according to claim 28, wherein the  
15 reproduction control information designates the information data by a pair of the identification information, and a file name of a management file having the management information.

30.    The apparatus according to claim 28, wherein the  
20 reproduction control information designates the information data by a set of the identification information, a file name of a management file having the management information, and a directory name on the recording medium that stores the management file.

25 31.    An apparatus for reproducing a plurality of information data recorded on a recording medium, comprising:



a reproducing unit that reproduces a plurality of information data and management information associated with the plurality of information data from the recording medium;

5            an instruction unit that instructs to delete arbitrary information data from the plurality of information data recorded on the recording medium;

            a management information processing unit that appends a deletion attribute indicating that the  
10    information data has been deleted from the recording medium, to management information of the deleted information data out of the information data, which are designated by reproduction control information indicating a reproduction sequence of the plurality of  
15    information data; and

            a display unit that identifiably displays the information data appended with the deletion attribute and other information data of the plurality of information data designated by the reproduction control  
20    information.